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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Karin Hamsen

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EXAMINER

GOODWIN, DAVID J

ART UNIT

PAPER NUMBER

2818

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/527,310	Applicant(s) HAMSEN ET AL.	
	Examiner DAVID GOODWIN	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-14 and 16-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Regarding claim 21.
3. The claim recites the limitation “no more than about 0.323 grams” in line 2.
4. There is insufficient support for this limitation in the specification or figures as originally filed.
5. Regarding claim 21.
6. The claim recites the limitation “no more than about 0.242 grams” in line 3.
7. There is insufficient support for this limitation in the specification or figures as originally filed.
8. Regarding claim 22.
9. Claim 22 depends from and incorporates claim 20 and 21.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 8, 11, 12, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Le (US 6,160,309) in view of Terasaki (US 2002/0011661).

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12. Regarding claim 8.

13. Le teaches a diode structure. Said structure comprises a diode (210). A press fit base (202) including an axially extending mounting region to mount a semiconductor chip (210). A head wire (204) provided with a head (205) configured to be affixed to the semiconductor chip. A stabilization arrangement, which includes at least a sleeve and an encapsulating material (206) filling cavities. Wherein the head wire together with the sleeve and the press fit base (202) forms a housing the cavities of which being filled with encapsulating material (206).

14. Le does not teach a stepped head.

15. Terasaki teaches press fit base having a head wire that includes a step (6c).

16. It would have been obvious to one of ordinary skill in the art to form a step in the head wire in order increase the stability of the connection and to prevent failure of insulating member. The combination of the stepped head wire covering the encapsulant filled cavity forming a sealed housing.

17. Regarding claim 11.

18. Le teaches that the encapsulant (206) comprises epoxy (column 6 lines 5-15).

19. Regarding claim 12.

20. Le teaches that only the head of the head wire which is inside the housing is surrounded by encapsulating material (fig 2).

21. Regarding claim 13.

22. Le teaches that only the head of the head wire includes at least two regions having different diameters (fig 2).

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23. Regarding claim 14.

24. Le teaches that the head wire is cone shaped (fig 2).

25. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Le (US 6,160,309) in view of Terasaki (US 2002/0011661) as applied to claim 8 and further in view of Khandros (US 6,274,823).

26. Regarding claim 9.

27. Le in view of Terasaki teaches elements of the claimed invention above.

28. Le further teaches that the head wire is composed of copper (column 3 lines 15-25).

29. Le in view of Terasaki does not teach the lead wire is coated with nickel phosphorous alloy.

30. Khandros teaches coating a copper lead wire with nickel phosphorous alloy (column 6 line 60-column 7 line 5).

31. It would have been obvious to one of ordinary skill in the art to coat the copper wire with nickel phosphorous alloy in order to increase the yield strength and resiliency of the wire.

32. Regarding claim 10.

33. Le in view of Terasaki teaches elements of the claimed invention above.

34. Le further teaches that the head wire is composed of copper (column 3 lines 15-25).

35. Le in view of Terasaki does not teach the lead wire is coated with nickel phosphorous alloy.

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36. Khandros teaches coating a copper lead wire with nickel phosphorous alloy (column 6 line 60-column 7 line 5).

37. It would have been obvious to one of ordinary skill in the art to coat the copper wire with nickel phosphorous alloy in order to increase the yield strength and resiliency of the wire.

38. Claims 16, 17, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Le (US 6,160,309) in view of Terasaki (US 2002/0011661) in view of Khandros (US 6,274,823).

39. Regarding claim 16.

40. Le teaches a diode structure. Said structure comprises a diode (210). A press fit base (202) including an axially extending mounting region to mount a semiconductor chip (210). A head wire (204) provided with a head (205) configured to be affixed to the semiconductor chip. A stabilization arrangement, which includes at least a sleeve and an encapsulating material (206) filling cavities. Wherein the head wire together with the sleeve and the press fit base (202) forms a housing the cavities of which being filled with encapsulating material (206). Le teaches that the encapsulant (206) comprises epoxy (column 6 lines 5-15). Le further teaches that the head wire is composed of copper (column 3 lines 15-25).

41. Le does not teach a stepped head.

42. Terasaki teaches press fit base having a head wire that includes a step (6c).

43. It would have been obvious to one of ordinary skill in the art to form a step in the head wire in order increase the stability of the connection and to prevent failure of

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insulating member. The combination of the stepped head wire covering the encapsulant filled cavity forming a sealed housing.

44. Le in view of Terasaki does not teach having a surface of the wire comprise nickel.

45. Khandros teaches coating a copper lead wire with nickel phosphorous alloy (column 6 line 60-column 7 line 5).

46. It would have been obvious to one of ordinary skill in the art to coat the copper wire with nickel phosphorous alloy in order to increase the yield strength and resiliency of the wire.

47. Regarding claim 17.

48. Khandros teaches coating a copper lead wire with nickel phosphorous alloy (column 6 line 60-column 7 line 5).

49. It would have been obvious to one of ordinary skill in the art to coat the copper wire with nickel phosphorous alloy in order to increase the yield strength and resiliency of the wire.

50. Regarding claim 18.

51. Le teaches that only the head of the wire which is inside the housing is surrounded by encapsulating material (206) and wherein the head includes two regions having different diameters (fig 2).

52. Regarding claim 19.

53. Le teaches that the head wire is cone shaped (fig 2).

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54. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Le (US 6,160,309) in view of Terasaki (US 2002/0011661) in view of Khandros (US 6,274,823).

55. Regarding claim 16.

56. Le teaches a diode structure. Said structure comprises a diode (210). A press fit base (202) including an axially extending mounting region to mount a semiconductor chip (210). A head wire (204) provided with a head (205) configured to be affixed to the semiconductor chip. A stabilization arrangement, which includes at least a sleeve and an encapsulating material (206) filling cavities. Wherein the head wire together with the sleeve and the press fit base (202) forms a housing the cavities of which being filled with encapsulating material (206). Le teaches that the encapsulant (206) comprises epoxy (column 6 lines 5-15). Le further teaches that the head wire is composed of copper (column 3 lines 15-25).

57. Le does not teach a stepped head.

58. Terasaki teaches press fit base having a head wire that includes a step (6c). Said stepped wire having a region, said region is an outer surface region

59. It would have been obvious to one of ordinary skill in the art to form a step in the head wire in order increase the stability of the connection and to prevent failure of insulating member. The combination of the stepped head wire covering the encapsulant filled cavity forming a sealed housing.

60. Le in view of Terasaki does not teach having a surface of the wire comprise nickel.

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61. Khandros teaches coating a copper lead wire with nickel phosphorous alloy (column 6 line 60-column 7 line 5).

62. It would have been obvious to one of ordinary skill in the art to coat the copper wire with nickel phosphorous alloy in order to increase the yield strength and resiliency of the wire.

Response to Arguments

63. Applicant's arguments filed 9/1/09 have been fully considered but they are not persuasive.

64. The applicant argues that the specification teaches "no more than about 0.323 grams" or "no more than about 0.242 grams" on page 4 lines 15-19.

65. The application discloses a range for known diodes of 0.369 and 0.630 g of plastic material and provides a specific example comprising 0.232 g of which 0.242 g are encapsulating material. The claim, however, states a range "no more than" which is understood to consist of the range 0 to the limit (mpep 2173.05.c.II). Therefore the specification does not enable a range commensurate in scope with the claim (mpep 2164.08) and therefore constitutes new matter (mpep 2163.06). Further, the applicant will note the analysis must take into account the ranges one of ordinary skill in the art would consider inherently supported. MPEP 2163.05.III, *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

66. The analysis must take into account which ranges one skilled in the art would consider inherently supported by the discussion in the original disclosure. In the decision in *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976), the ranges

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described in the original specification included a range of "25%- 60%" and specific examples of "36%" and "50%." A corresponding new claim limitation to "at least 35%" did not meet the description requirement because the phrase "at least" had no upper limit and caused the claim to read literally on embodiments outside the "25% to 60%" range. MPEP 2163.05.III

67. The applicant argues that there is no suggestion or motivation to combine Le with Terasaki.

68. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the stepped head increases the stability of the encapsulated wire connection. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

69. The reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements is the increase in stability of the encapsulated connection resulting from a stepped wire head. Further, it is reasonable to the stepped

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head to successfully stabilize the connection when combine with Le by preventing peel off.

70. The applicant argues that the references do not teach a sealed housing.

71. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The combination of the cavity formed in Le, which forma a wall around the wire head, with the stepped head of Terasaki, which forms a ceiling over the wire head, results in a sealed cavity enclosing the wire head.

72. In response to applicant's argument that the invention is for the purpose of reducing the amount of epoxy used, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

73. The applicant requests that specific evidence be provided for those assertions and/or contentions that may be supported by Official notice.

74. The applicant does not cite any instances of assertions and/or contentions that may be supported by Official notice. Further, all elements of the rejection were cited taken directly from the prior art (see above) making any use of official notice wholly unnecessary.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID GOODWIN whose telephone number is (571)272-8451. The examiner can normally be reached on Monday through Friday, 9:00am through 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Loke can be reached on (571)272-1657. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

djg

/Andy Huynh/

Primary Examiner, Art Unit 2818

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